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| APPLICATION NO.            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|----------------------|------------------|
| 10/713,683                 | 11/14/2003  | Hiroaki Yagishita    | WAKA 20.745          | 2860             |
| 26304                      | 7590        | 08/11/2006           | EXAMINER             |                  |
| KATTEN MUCHIN ROSENMAN LLP |             |                      | AGUIRRECHEA, JAYDI A |                  |
| 575 MADISON AVENUE         |             |                      | ART UNIT             |                  |
| NEW YORK, NY 10022-2585    |             |                      | PAPER NUMBER         |                  |
|                            |             |                      | 2834                 |                  |

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10713,683

Applicant(s)

YAGISHITA, HIROAKI

Examiner

Jaydi A. Aguirrechea

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 6/12/06 have been fully considered but they are not persuasive.
2. Applicant's arguments regarding the rejection of limitations previously presented as claims 4 and 5 are not persuasive. Specifically, Wakabayashi discloses (column 2, lines 10-15) that in an element having the disclosed structure, any electrode could be selected for electrical connection with the piezoelectric reed; and, even when the oscillator is of cantilevered type (as the present invention is) and has a lead electrode on only one end, the electrical connection between the piezoelectric and the electrode can be ensured. Wakabayashi discloses that such structure improves the efficiency and reduces the cost of manufacture. Therefore, the Examiner considers the rejection of amended claim 1 to be proper and therefore maintained.
3. Regarding the challenging of the Official Notice, the Examiner would like to present two references supporting the examiner's position. US 6362561 and US 3796968 show driving electrodes (3, 4 and 5, 6, respectively) being parallel to each other and formed on opposite flat faces of the oscillator.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-3 and 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (US 2003/0020564) in view of Wakabayashi and further in view of Kuroda (US 6362561) and/or Luscher (US 3796968).

Nishimura discloses a crystal unit (figures 8, 10 and 12) comprising:

- a crystal blank (1) provided with a pair of excitation electrodes (2, 3) and a pair of extension electrodes (33, 34) extended from the excitation electrodes; and a mounting member on which a pair of connection terminals is formed;
- a mounting member (shown in figure 8) on which a pair of connection terminals is formed (47),
- wherein said crystal blank has a first principal surface and a second principal surface, an inclined surface is formed at one end of said first principal surface, said principal surface and said second principal surface are flat-shaped and parallel to each other, and said extension electrodes are extended toward an end at which said inclined surface is formed, (figure 10 shows the extension electrode extending toward the end of the inclined surface)
- wherein a conductive material is disposed between said connection terminals and said extension electrodes (13) in such a way that said second principal surface face, said mounting member and said crystal blank is held by said mounting member at the position of the end to

- which said extension electrodes are extended and electrically connected to said connection terminals (see figures 8 and 10); and
- wherein one of the excitation electrodes (2) is arranged on the first principal surface and the other of the excitation electrodes (3) is arranged on the second principal surface opposite to the one of the excitation electrodes arranged on the first principal surface;
  - figure 10 shows both ends of the piezoelectric crystal being tapered;

However, Nishimura fails to disclose the excitation electrodes (2 and 3) being parallel to each other, one of the inclined surfaces having different size than the other, and the extension electrodes being extended toward the greater inclined surface .

Wakabayashi discloses, in Column 8 lines 41-45, a crystal unit wherein said inclined surfaces are different from each other in size at the respective ends and in Column 9 lines 49-54, Wakabayashi teaches a crystal unit where said extension electrodes are extended toward the greater inclined surface. Wakabayashi discloses the piezoelectric blank having a trapezoidal shape. Specifically, Wakabayashi discloses (column 2, lines 10-15) that in the structure of their invention any electrode could be selected for electrical connection with the piezoelectric reed; and, even when the oscillator is of cantilevered type (as the present invention discloses) and has a lead electrode on only one end, the electrical connection between the piezoelectric and the electrode can be ensured. Wakabayashi discloses that such structure improves the efficiency and reduces the cost of manufacture.

Note: The applicant is advised that it has been held by the courts that differences in dimensions do not amount to patentability where such differences do not affect the operation of

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the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). It is the Examiner's position that changing the dimensions of the inclined surfaces does not distinguish from that of the prior art.

Therefore, it would have been obvious at the time of the invention was made to make the piezoelectric blank having inclined surfaces, one of the inclined surfaces having different size than the other, and the extension electrodes being extended toward the greater inclined surface, as disclosed in Wakabayashi in order to improve the efficiency of the system and to reduce the cost of manufacture as explained above.

Kuroda and Luscher teach the use parallel driving electrodes (3, 4 and 5, 6 respectively) located on opposite flat surfaces of a piezoelectric blank to induce an electric field between the electrodes and/or create a vibration in the piezoelectric device in the transverse direction parallel to the electrodes, as necessitated by the specific requirements of a particular application.

Therefore, it would have been obvious at the time of the invention was made to form the electrodes on the flat surfaces parallel to each other in order to produce the desired vibration in the piezoelectric device, as necessitated by the specific requirements of the particular application.

With regards to claim 2, Nishimura discloses the conductive material 13 being a conductive adhesive (see paragraph 54).

With regards to claim 3, in figure 11 Nishimura shows the extension electrodes extending toward both sides of one end of the crystal blank.

With regards to claim 6, Nishimura discloses the crystal blank having substantially rectangular shape as a two-dimensional shape and two inclined surfaces formed at the end of the crystal blank.

With regards to claim 7, in figure 11, Nishimura discloses only one of the ends being inclined.

With regards to claim 8, Nishimura discloses the casing having a recess and the connections being formed on the bottom face of the recess (see figure 8).

With regards to claim 9, Nishimura discloses a hermetically sealed housing (see paragraph 69).

With regards to claim 10, Nishimura discloses the use of a quartz crystal. However, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With regards to claims 11 and 12, Nishimura discloses substantially rectangular inclined surfaces.

With regards to claim 13, note that when the electrodes are formed on a parallel relation on opposing faces of the piezoelectric crystal, the spacing between them will be uniform, therefore, as explained above, the invention is obvious over Nishimura.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. Aguirrechea whose telephone number is 571-272-2018. The examiner can normally be reached on M-Th 9-7.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAA  
8/6/06

  
Jaydi Aguirrechea  
Patent Examiner